CYTOTOXIC, ANTI-MICROBIAL AND ANTIOXIDANT ACTIVITY-GUIDED FRACTIONATION FROM *Garcinia nervosa*

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JUNE 2014

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1. Letter of Report Submission

Date : 18 July 2014
Project File No.: 600-RM I/ST/FRGS 5/3/Fst (264/2010

Assistant Vice Chancellor (Research)
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Dear Professor,

FINAL RESEARCH REPORT "CYTOTOXIC, ANTI-MICROBIAL AND ANTIOXIDANT ACTIVITY-GUIDED FRACTIONATION FROM *Garcinia nervosa*"

With reference to the above, I am pleased to submit two hard copies and one soft copy in CD of the Final Research Report entitled "Cytotoxic, Anti-Microbial and Antioxidant Activity-Guided Fractionation from *Garcinia nervosa*".

Thank you.

Yours faithfully

KHONG HENG YEN
Leader
Research Project

5. Report

5.1 Proposed Executive Summary

There are several local Malaysian *Garcinia* species which have ethnobotanical uses but so far little studies have been carried out to link these folkloric uses with the phytochemistry of these plant species. It would be interesting therefore, to develop a phytochemical data of one such Sarawakian species which is *Garcinia nervosa*, a species not reported before.

Some species of *Garcinia* have been shown to possess interesting biological activities such as cytotoxic, antibacterial, antioxidant and anti-cancer activities. Leaves and stem bark samples of *Garcinia nervosa* will be extracted and purified using standard protocols which involves the conventional extraction technique such as chromatographic methods. Analyses for structural elucidations of pure bioactive compounds will involve the usual spectroscopic techniques such as NMR, FTIR, UV and MS.

The isolation and identifications of these natural products will lead us to establish a profile of chemical and biological activities of the extract for standardization and product development. The outcome of this project is a document of medicinal plants rich in active compounds for further investigation for potential in drug development

5.3 Introduction

Tropical plants are beneficial and can be manipulated for therapeutic purpose due to the high content of rich biological active compounds. *Garcinia* is one of those plant. Garcinia genus belongs to the family *Clusiaceae,* consists of a large genus of trees or shrubs, native to the "Old World" which are Asia, Australia, tropical and southern Africa and Polynesia. This genus is represented by approximately 200 species, some of which are known for their edible fruits. They are also used in traditional medicine or for other ethnobotanical uses such pigments from resins, gums, waxes, fuel and timber (Hemshekhar et al. 2011).

Garcinia species are used traditionally for the treatment of abdominal pain, infected wound, dysentery, diarrhoea, suppuration, leucorrhoea and chronic ulcer and gonorrhea (Jayaprakasha, Negi, & Jena 2006). Although there were a number of studies been conducted on the different *Garcinia* species from various places however, there are no intensive studies and proper modern analysis of medicinal properties reported on *Garcinia nervosa* from Sarawak. Our very own *Garcinia nervosa* may serve as a potential source of the bioactive compounds as like the other *Garcinia* species. Thus, it would be an interesting study on this species of indigenous tropical plant of Sarawak in order to develop a new chemical profile not only for the purpose of expanding knowledge but also as an alternative for medicinal purpose to cure diseases.

The objectives of the research are:

i) To isolate the chemical constituents from the leaves and stem barks extracts of *Garcinia nervosa*

ii) To identify and elucidate structure of the isolated pure compounds

iii) To determine the cytotoxicity, antimicrobial, anti-inflammatory and antioxidant activities of the crude extracts.